TECHNICAL REVIEW DOCUMENT
for
RENEWAL TO OPERATING PERMIT 01OPAD212

Suez Denver Metro, LLC – Metro Wastewater Cogeneration Facility
Adams County
Source ID 0010097

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Reviewed by:

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I. Purpose:

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewal and modification of the Operating Permit for the Suez Denver Metro, LLC - Metro Wastewater Cogeneration Facility. The current Operating Permit for this facility was issued on January 1, 2008. The expiration date was January 1, 2013. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal Operating Permit is issued and any previously extended permit shield continues in full force and operation.

This document is designed for reference during review of the proposed permit by EPA, the public, other interested parties and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the renewal application submitted on December 7, 2011, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at www.colorado.gov/cdphe/airTitleV. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

This Operating Permit covers the cogeneration and combustion sources located at the Metro Wastewater Treatment Facility. Suez Denver Metro, LLC owns and operates two combustion turbine generator units and is responsible for operating four internal combustion engines that are owned by the Metro Wastewater Reclamation District (MWRD). Suez Denver Metro, LLC is also responsible for the permitting and compliance of three boilers and four flares that are owned and operated by MWRD. Suez Denver Metro, LLC is also responsible for reporting fugitive emissions occurring from digester gas piping downstream of each major header isolation valve off the digester tanks. However, fugitive emissions from these leaks are below APEN reporting levels.

The turbines and engines provide power for the facility and heat to the digester tanks. The turbines burn either natural gas or digester gas as fuel and the engines burn only digester gas as fuel. Digester gas is generated by MWRD in the anaerobic digester tanks. These tanks maintain an oxygen-poor environment and an appropriate residence time with a suitable bacterial population to allow digestion of dissolved and suspended solids. This treatment process generates digester gas, which contains primarily methane (CH_4) and carbon dioxide (CO_2), with small quantities (generally less than 2,500 ppm) of hydrogen sulfide (H_2S). The boilers provide heat to the digester tanks and burn only natural gas as fuel. The flares are used to incinerate excess digester gas that cannot be used as fuel.

There are two Operating Permits associated with the Metro Wastewater Facility. Suez Denver Metro, LLC is the permittee for the combustion sources (01OPAD212). MWRD is the permittee for the wastewater treatment sources (95OPAD072). This Operating Permit pertains to the combustion sources.

The facility is located at 6450 York Street in Denver, Adams County, just southwest of the confluence of the South Platte River and Sand Creek in an industrialized area. The facility is bordered on the west by the South Platte River and on the south by the Burlington Ditch. To the east approximately 1/4 mile is Interstate 270.

The summary of emissions that was presented in the Technical Review Document for the previous renewal permit has been modified to reflect the updated potential to emit (PTE) of both criteria and HAP pollutants due to changes that may have occurred in emission factors and/or emission limitations since the previous permit was issued. Emissions (in tons/yr) for the total facility covered by both Operating Permits (Suez Denver Metro, LLC (01OPAD212) and MWRD (95OPAD072)) are as follows:

Emission Unit	Potential to Emit (PTE)							
	PM	PM_{10}	SO_2	NO_X	CO	VOC	H_2S	HAPs
Suez Denver Metro, LLC Sources								
Combustion Sources (turbines, flares, engines and boilers)	17.26	17.26	169.6	86.85	99	12.6	5.3	See Table on Page 12
Metro Waste Water Reclamation District (MWRD) Sources								
Fugitive VOC Emissions from Wastewater Treatment Operations						11.1		See Table on Page 12
Emergency Generator E001 (1850 hp)	0.43	0.25	0.87	19.27	3.67	0.35		
Emergency Generator E002 (1322 hp)	0.11	0.11	0.11	3.48	1.90	0.21		
Proposed New Emergency Generator E003 (755 hp)	0.06	0.06	0.04	1.98	1.09	0.12		
Emergency Generator E004 (40 hp)[1]	Negl.	Negl.	Negl.	0.46	0.16	0.03		
Insignificant Heaters[2]	1.62	1.62	0.13	21.36	17.94	1.17		
Total	19.48	19.30	170.75	133.40	123.76	25.58	5.3	13.59

[1]This generator was previously considered an insignificant activity.
[2]Included in the insignificant activity list in Appendix A of the permit.

Potential to emit indicated in the above table is based on the following information:

Criteria Pollutants

Potential to emit for the Suez Denver Metro, LLC sources, the MWRD fugitive VOCs and emergency generator E001 are based on permitted emissions.

For the other MWRD emergency generators (E002 through E004), potential to emit of criteria pollutants is based on the emission factors, design rate and 500 hours per year of operation in accordance with the September 6, 1995 EPA Memo, "Calculating Potential to Emit (PTE) for Emergency Generators". The emission factors used for E002 and E003 are based on the NSPS limits for PM, NO_X and CO (PM_{10} was assumed to equal PM), AP-42, Section 3.4 (dated 10/96) for VOC and for SO_2 a fuel sulfur limit of 500 ppm and a diesel density of 7.05 lb/gal. Emission factors for emergency generator E004 are based on HAPCalc, version 3.0, EPA emission factors. Emissions from the MWRD insignificant heaters are based on the design rate, 8760 hours per year of operation and AP-42 emission factors (Section 1.4, dated 3/98).

HAP Emissions

The breakdown of HAP emissions by emission unit and/or fuel burned and individual HAPs is provided on page 12 of this document. As discussed in the table footnotes on page 12, HAP PTE was determined as follows:

For the Suez Denver Metro, LLC combustion sources (NG and DG combustion), HAP emissions are based on the permitted fuel consumption limits and the most conservative scenario for the equipment permitted to burn that fuel and published emission factors (AP-42 for most, FIRE for the flares burning digester gas).

For fugitive emissions from wastewater treatment operations, HAP emissions are based on the maximum individual HAP emissions as calculated from the actual sampling data from the years 1992 – 2005 multiplied by 1.2 and total HAPS are based on permitted VOC emissions. Although this method for determining the PTE of individual HAPS differs from traditional methods, the Division considers that this method is justified as discussed in Section III of the Technical Review Document for the first renewal of the MWRD permit (95OPAD072, issued September 1, 2007).

For the MWRD emergency generators E001 through E003, HAP emissions are based on design rate, AP-42 emission factors (Section 3.4) and 500 hrs/yr of operation for all but E001. Emissions from E001 are based on permitted hours of operation (750 hrs/yr). For emergency generator E004, HAPS emissions are based on design rate, HAPCalc version 3.0 EPA emission factors and 500 hrs/yr of operation.

For the insignificant heaters, HAP emissions are based on design rate, 8760 hrs/yr of operation and AP-42 emission factors (Section 1.4).

Actual emissions are shown in the table below in tons per year (tpy) and are based on APENs submitted for the data years indicated in the table. If PTE is indicated in the data year column, emissions are based on PTE (requested) emissions.

Emission Unit	Data Year	Actual Emissions						
		PM	PM_{10}/ $PM_{2.5}$	SO_2	NO_X	CO	VOC	HAPs
Suez Denver Metro, LLC Sources								
Turbines	2012	3.4	3.4	61.8	61	33.1	9.6	
Engines[1]	2012			0.25	0.40	0.51		
Boilers	2012				0.55	0.45		
Flares[1]	2012			1.96	0.29	0.24		
Metro Wastewater Reclamation District (MWRD) Sources								
Fugitive VOC Emissions from Wastewater Treatment Operations	2008						7.14	0.21
Emergency Generator E001 (1850 hp, AIRS pt 012)	2010				0.67	0.18		

Emission Unit	Data Year	Actual Emissions						
		PM	PM_{10}/ $PM_{2.5}$	SO_2	NO_X	CO	VOC	HAPs
Emergency Generator E002 (1322 hp, AIRs pt 018)	2011				0.09	0.05		
Proposed New Emergency Generator E003 (755 hp, AIRs pt 021)	PTE				0.40	0.22		
Total		3.4	3.4	64.01	63.4	34.75	16.74	0.21

MACT Requirements

Hazardous air pollutant (HAP) emissions from this facility are below the major source level (10 tons/yr of any single HAP and 25 tons/yr of combined HAP). Although the facility is not a major source for HAPS, the EPA has been promulgating rules for area sources (sources that are not major), those requirements that could potentially apply to the equipment addressed in this permit are discussed below:

Paint Stripping and Miscellaneous Surface Coating at Area Sources (40 CFR Part 63 Subpart HHHHHH)

The final rules for paint stripping and miscellaneous surface coating were published in the Federal Register on January 9, 2008 and apply to area sources that perform paint stripping operations using methylene chloride, spray application of coatings to motor vehicles and mobile equipment and spray application of coatings that contain the target HAPS (chromium, lead, manganese, nickel or cadmium). As indicated in 40 CFR Part 63 § 63.11170(a)(2) and (3), spray applications (to motor vehicles and using coatings that contain the target HAPS) that meet the definition of facility maintenance are not subject to the requirements in this rule. The Division considers that any spray coatings of motor vehicles and mobile equipment and spray application of coatings that contain the target HAP at this facility would meet the definition of facility maintenance. The source indicated that none of the paint stripping materials used at the facility contain methylene chloride; therefore, the provisions in 40 CFR Part 63 Subpart HHHHHH do not apply.

Gasoline Dispensing Facilities (40 CFR Part 63 Subpart CCCCCC)

EPA promulgated National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities in 40 CFR Part 63 Subpart CCCCCC which were published in the Federal Register on January 10, 2008 and apply to gasoline dispensing facilities (GDF) located at area source (minor sources for HAPS). There are no gasoline storage tanks addressed in this permit, therefore, these requirements do not apply.

Reciprocating Internal Combustion Engines (RICE) (40 CFR Part 63 Subpart ZZZZ)

The reciprocating internal combustion engine (RICE) MACT was signed as final on February 26, 2004 and was published in the Federal Register on June 15, 2004. Under this rulemaking only RICE that were > 500 hp and located at major sources of HAPS were subject to the requirements. Subsequent revisions were made to the RICE MACT to address new engines ≤ 500 hp located at major sources and new engines of all sizes at area sources (final rule published January 18, 2008), existing compression ignition engines ≤ 500 hp at major sources and all sizes at area sources (final rule published March 3, 2010) and existing spark ignition engines ≤ 500 hp at major sources and all sizes at area sources (final rule published August 20, 2010). Revisions were made to the RICE MACT on January 30, 2013. The January 30, 2013 revisions did not change the applicability requirements but did change the specific requirements for some engines (e.g. engines greater than 500 hp located at area sources of HAPs).

There are four (4) digester gas fired internal combustion engines addressed in this permit that qualify as existing (construction or reconstruction commenced prior to June 12, 2006) engines. These engines are subject to work practices standards and the appropriate requirements will be included in the permit.

There are engines (gasoline-fired portable sump pump (3 hp) and portable gasoline-fired generator (10 hp)) included in the insignificant activity list of the current permit (last revised 3/25/09). These engines qualify as non-road engines, therefore, the requirements in 40 CFR Part 63 Subpart ZZZZ do not apply to these engines.

Industrial, Commercial and Institutional Boilers located at Area Sources (40 CFR Part 63 Subpart JJJJJJ)

The requirements in 40 CFR Part 63 Subpart JJJJJJ do not apply to gas fired boilers, nor do the requirements apply to process heaters. The boilers addressed in this permit burn natural gas. There is fuel burning equipment identified in the insignificant activity list of the current permit (last revised 3/25/09) but the fuel burned is gaseous, therefore, the requirements in 40 CFR Part 63 Subpart JJJJJJ do not apply.

New Source Performance Standards (NSPS)

EPA has promulgated NSPS requirements for new source categories since the issuance of the first renewal permit for this facility. NSPS requirements generally only apply to new or modified equipment and in general new equipment has been addressed through modifications of the Title V permit. However, because the recently promulgated NSPS requirements address equipment that may not be subject to APEN reporting or minor source construction permit requirements, the applicability of some of the newly promulgated requirements are being addressed here.

NSPS Subpart JJJJ – Stationary Spark Ignition Engines

NSPS Subpart JJJJ applies to stationary spark ignition engines that commenced construction, reconstruction or modification after June 12, 2006 and were manufactured after specified dates. The four engines included in Section II of the permit were

constructed prior to June 12, 2006 and have not been modified or reconstructed since then, therefore these requirements do not apply to those engines. The two engines included in the insignificant activity list of the permit were included in the permit prior to June 12, 2006, therefore, those engines also would not meet the applicability criteria. In addition, the two engines included in the insignificant activity list qualify as non-road engines; therefore these requirements would not apply to those engines.

NSPS Subpart IIII – Stationary Compression Ignition Engines

NSPS Subpart IIII applies to stationary compression ignition engines that commenced construction, reconstruction or modification after July 11, 2005 and were manufactured after specified dates. The date the engine commenced construction is the date the engine was ordered by the owner/operator. There are no compression ignition engines addressed in this permit, therefore, these requirements do not apply.

NSPS Subparts CCCC and DDDD – Commercial and Institutional Solid Waste Incinerator Requirements

These requirements apply to incinerators that burn solid waste. The equipment addressed in this permit combust either digester gas or natural gas. Digester gas is not considered a solid waste.

NSPS Subparts EEEE and FFFF – Other Solid Waste Incinerator Requirements

These requirements apply to incinerators that burn either municipal or institutional waste. The equipment addressed in this permit combust either digester gas or natural gas. Digester gas is not considered a municipal or institutional waste.

Compliance Assurance Monitoring (CAM) Requirements

CAM applies to any emission unit that is subject to an emission limitation, uses a control device to achieve compliance with that emission limitation and has potential pre-control emissions greater than major source levels. In the technical review document for the initial issuance of this permit (issued September 1, 2002), the Division indicated that CAM did not apply to any equipment addressed in this permit, since none of the emission units addressed in this permit are equipped with a control device. The technical review document prepared for the initial permit (issued September 1, 2002), noted the following with regard to control devices (see page 23)

> As discussed previously [page 13], the flares are not used as control devices but are used to get rid of excess digester gas that cannot be used in either the turbines or engines. In addition, the permit specifies that when the H_2S concentration of the digester gas approaches 2000 ppmv that the source shall take measures to lower the concentration of H_2S in the digester gas. Although measures taken to lower the H_2S concentration in the digester gas will reduce emissions and allow the source to comply with their SO_2 and H_2S emission limitations, such measures are not considered a control device subject to the CAM

> requirements. Under CAM, "a control device is equipment… that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere… For purposes of [CAM], a control device does not include passive control measures that act to prevent pollutants from forming". The addition of ferric or ferrous chloride to the wastewater treatment process to reduce the formation of H_2S in the digester gas is therefore not considered a control device. Therefore, no emission units addressed in this permit are equipped with control devices and the Compliance Assurance Monitoring (CAM) requirements to [sic] not apply to any emission units at this facility.

Control devices have not been installed on the equipment addressed in this permit since the initial issuance of this permit, therefore, CAM does not apply.

Colorado Regulation No. 7, Sections XII and XVIII – Requirements for Oil and Gas Operations in the 8-hour Ozone Control Area

Although this facility is located in the 8-hour ozone control area, these requirements do not apply since oil and gas operations do not occur at this facility.

Colorado Regulation No. 7, Section XVI - Requirements for Engines in the 8-Hour Ozone Control Area and Section XVII – Statewide Requirements for Oil and Gas Operations

The requirements in Section XVI were adopted in March 2004 and apply to the 8-hour ozone control area. The requirements in Section XVII were adopted in December 2006 and apply statewide. The requirements in Section XVI apply to natural gas fired engines. The requirements in Section XVII include requirements for condensate tanks, glycol dehydrators and natural gas fired engines.

Condensate tank and glycol dehydrator requirements

There are no condensate tanks or glycol dehydrators at this facility. Therefore, these requirements do not apply.

Engine requirements

The requirements in Regulation No. 7, Section XVI and XVII.E apply to natural gas-fired engines. The engines at this facility burn either digester gas or gasoline, therefore, these requirements do not apply.

Greenhouse Gas Emissions

The potential-to-emit of greenhouse gas (GHG) emissions from this facility is less than 100,000 TPY CO_2e. Future modifications greater than 100,000 TPY CO_2e may be subject to regulation (Regulation No. 3, Part A, I.B.44).

III. Discussion of Modifications Made

Source Requested Modifications

December 7, 2011 Renewal Application

In their renewal application, the source requested the following changes to the permit:

Turbine Serial Nos.

In the renewal application, the source indicated that the five year overhaul of the turbines had been conducted and that replacement of the engine cores resulted in a change in the serial number. The changes to the serial numbers were made to the tables in Section I, Condition 6.1 and the table in Appendices B and C

Page following Cover Page

In the renewal application, the source indicated that the parent company had changed. The page following the cover page was revised to include the parent company, owner and operating company. In addition, based on discussions with the source, the responsible official was changed and the responsible official's authorized representative was added.

Section II.1 – Cogeneration Facility

In the renewal application, the source requested that the requirements in 40 CFR Part 63 Subpart ZZZZ be included in the permit for the engines. These engines are subject to work practice standards and the requirements in Subpart ZZZZ were included in "new" Condition 1.18.

In a telephone conversation on August 27, 2013, the source requested that the phrase "at full load and standard ISO conditions" be added after the CO RACT limit (Condition 1.5) in the summary table to be consistent with the language in the text for Condition 1.5. The change was made as requested. In addition, the phrase "standard ambient" was added after "ISO" to the NO_X ppm limit (Condition 1.4) in the summary table to be consistent with the language in the text for Condition 1.4.

Permit Shield (Section III)

The source requested the permit shield for the notification and reporting requirements in 40 CFR Part 63 Subpart ZZZZ (RICE MACT) and for the requirements in 40 CFR Part 63 Subpart JJJJJJ (area source Boiler MACT), as these requirements are not applicable to the equipment at this facility. The source provided a justification for the shield and the permit shield has been granted as requested.

Insignificant Activities (Appendix A)

The source submitted an updated list of insignificant activities and the appropriate changes were made to the permit.

In a telephone conversation on August 27, 2013, the source requested that the engine dipping tanks listed under the categories of chemical storage tanks/containers less than 500 gal and chemical storage areas less than 5,000 gal capacity be removed. The changes were made as requested.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments on other permits, to the Suez Denver Metro, LLC Operating Permit with the source's requested modifications. These changes are as follows:

Section I – General Activities and Summary

- Condition 1.4 was revised to remove Section IV, Condition 3.d as a state-only requirement, since EPA approved these provisions into Colorado's SIP effective October 6, 2008.

- The alternative operating scenario (AOS) for temporary turbine replacement was updated to the latest version.

- The second paragraph in Condition 3.1 was removed.

Section II.1 – Cogeneration Facility

- In the summary table of Section II.1 the following changes and/or corrections were made:

    - The performance test frequency in Conditions 1.4 and 1.5 were revised to "every five years".

    - The short-term fuel limit in Condition 1.6 was revised to include only the limit that applied upon startup of the new flares.

    - The condition number for the flare RACT requirements was corrected (should be Condition 1.17, rather than Condition 1.20)

- The frequency of performance test requirements in Conditions 1.4.1 and Condition 1.5.1 was revised to "every five years".

- The performance test language in Condition 1.11 was revised to reflect current performance test language.

Section III – Permit Shield

- Added NSPS Subpart AAAA and BBBB to the permit shield for municipal waste combustors. In addition, removed NSPS Subpart Ca from the permit shield as this subpart is noted as "reserved".

Section IV – General Conditions

- Added a version date.

- The paragraph in Condition 3.d indicating that the requirements are state-only has been removed, since EPA approved these provisions into Colorado's SIP effective October 6, 2008.

- The title for Condition 6 was changed from "Emission Standards for Asbestos" to "Emission Controls for Asbestos" and in the text the phrase "emission standards for asbestos" was changed to "asbestos control".

- General Condition 29 was revised by reformatting and adding the provisions in Reg 7, Section III.C as paragraph e.

Appendices

- Language was added to the insignificant activity list in Appendix A to indicate those insignificant activity categories for which records should be available to verify insignificant activity status.

- Changed the Division contact for submittal of reports in Appendix D.

- Cleared the information from the table in Appendix F.

Metro Waste Water Reclamation District / Suez Metro Denver, LLC - Facility Wide HAP Emissions (tons/yr)

Pollutant	Source								
	NG Combustion[1]	DG Combustion[2]	WW Treatment[3]	MWRD E001[4]	MWRD Insig Heaters[5]	MWRD E002[6]	MWRD E003[6] (proposed new gen.)	MWRD E004 [6]	Total
acetaldehyde		5.80E-02		1.09E-04		5.25E-05	2.10E-05	3.90E-04	5.86E-02
acrolein		3.48E-02		3.40E-05		1.72E-05	6.56E-06	2.40E-04	3.51E-02
benzene*	1.01E-04	1.56E+00	7.00E-02	3.35E-03	4.48E-04	1.70E-03	6.46E-04	6.83E-04	1.64E+00
cadmium	5.29E-05				2.35E-04				2.88E-04
chlorobenzene*			1.30E-01						1.30E-01
chloroethane (ethyl chloride)*			1.00E-01						1.00E-01
chloroform*			1.45E+00						1.45E+00
chromium	6.72E-05				2.99E-04				3.66E-04
dichlorobenzene	5.76E-05				2.56E-04				3.14E-04
ethylbenzene*			7.10E-01						7.10E-01
formaldehyde	3.60E-03	1.31E-01		3.41E-04	1.60E-02	1.73E-04	6.57E-05	2.91E-03	1.54E-01
hexane	8.64E-02				3.84E-01				4.70E-01
methylene chloride*		6.11E-02	2.36E+00						2.42E+00
methanol									0.00E+00
naphthalene	2.93E-05								2.93E-05
nickel	1.01E-04				4.48E-04				5.49E-04
styrene*		3.41E-02	9.40E-01						9.74E-01
TCA (methyl chloroform)*		5.57E-02	2.16E+00						2.22E+00
TCE*			1.30E+00						1.30E+00
tetrachloroethylene (perchloroethylene)*			5.30E+00						5.30E+00
toluene*	1.63E-04	4.89E-02	7.19E+00	1.21E-03	5.75E-04	6.15E-04	2.35E-04	2.20E-04	7.24E+00
Total PAHs				9.15E-04		4.64E-04	1.76E-04		1.56E-03
vinyl chloride									0.00E+00
xylene				8.33E-04		4.22E-04	1.61E-04	6.19E-05	1.48E-03
Total	9.06E-02	1.99	11.10	6.79E-03	4.02E-01	3.44E-03	1.31E-03	4.50E-03	13.59
Highest Single HAP									7.24

[1]based on boilers burning natural gas at permitted annual limit, using AP-42 emission factors

[2]based on the flares burning digester gas at permitted rate, emission factors from FIRE (used boiler emission factors)

[3]Based on individual HAP at maximum actual emission rate for period of 1992 - 2005 x 1.2

[4]based on max hrly fuel and permitted hrs of operation.

[5]Emissions based on 8760 hrs/yr of operation.

[6]Emissions are based on 500 hrs/yr of operation in accordance with the September 6, 1995 EPA Memo, “Calculating Potential to Emit (PTE) for Emergency Generators”

*HAPS indicated as the significant HAPS for wastewater treatment. Individual HAPS based on max past actuals x 1.2. Total HAPS based on permitted VOC emission limit